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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/824,242
Filing Date: April 14, 2004
Appellant(s): HANES, DAVID H.

Patrick Billig, Reg. No. 38,080
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/27/10 appealing from the Office action mailed 7/26/10.

Art Unit: 2478

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1-2, 4-25, 27-36, 38, 40-43 and 45-48 are pending and rejected.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

6901451	MIYOSHI	5-2005
6173374	HEIL	1-2001
5987541	HEWITT	11-1999

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4-14, 16-23, 33-36, 43, 45-48 are rejected under 35 U.S.C. 103(a) as being unpatentable Heil et al. (USPN 6,173,374) (hereinafter Heil) in view of by Miyoshi et al. (USPN 6,901,451) (hereinafter Miyoshi).

Referring to claim 1, Heil discloses an I/O request processing system (i.e. nodes 150), comprising:

a drive command module adapted to receive an I/O request from a client application (i.e. host's upper layers, which contain the software needed to operate the host system) referencing a data block request for processing said I/O request (i.e. I/O redirector software 240) (Figure 2; Figure 3, ref. 400; col. 10, lines 50-65; col. 11, lines 45-52); and

a redirector adapted to automatically and transparently convey the I/O request over a communication network 121 to a remote peripheral device 151 for processing of the I/O request (i.e. the I/O redirector software calls the I/O ship ISM in order to ship request to remote HBA,

Art Unit: 2478

the host's upper layers 200,300 have no knowledge of the redirection, it merely waits for the request to be fulfilled by the I/O driver) (Figure 3, ref. 450; col. 11, line 45 to col. 12, line 7).

Heil does not explicitly disclose the request referencing a local peripheral address of a peripheral device to execute the I/O request.

In analogous art, Miyoshi discloses another I/O request translation system which receives an I/O request of a local peripheral device (i.e. PCI request references a local PCI address space which is then mapped to a plurality of remote peripheral devices represented by the remote PCI address space) at a module which references a local peripheral address to execute the I/O request (Figure 5; col. 12, lines 25-37; col. 4, lines 30-67),

the redirector is adapted to replace the local peripheral address with an address of the remote peripheral device (i.e. translate the local address space to an address of the remote device) (Miyoshi: Figure 10a, ref. 1003; col. 4, lines 31-36).

It would have been obvious to one of ordinary skill in the art to combine the teaching of Miyoshi with Heil by substituting the block directory subsystem of Heil with the address/node ID translator 309 of Miyoshi in order for the users of Heil to realize the benefits of Miyoshi, specifically the ability to transfer local PCI bus transactions from a local node of a PCI bus to a PCI bus on a remote node over a network (Miyoshi: col. 1, lines 55-57).

Referring to claim 2, Heil-Miyoshi discloses the redirector is adapted to correlate the local peripheral address space with an address of the remote peripheral device (i.e. translate local address space to address of remote device) (Miyoshi: Figures 3 and 10a).

Referring to claim 4, Heil-Miyoshi discloses the drive command module calls a bus driver (i.e. I/O shipping ISM 270) to invoke the redirector (i.e. I/O ISM 270 formats the request and sends the request out to the network) (Heil: col. 11, lines 35-45).

Referring to claim 5, Heil-Miyoshi discloses a network server (i.e. remote network PCI adapter 419) adapted to receive the I/O request from the communications network and execute a command (i.e. various PCI commands such as read/write) to process the I/O request via the

Art Unit: 2478

remote peripheral device (i.e. device 415A-B) (Miyoshi: Figure 4; col. 9, line 57 to col. 10, line 24).

Referring to claim 6, Heil-Miyoshi discloses the I/O request includes a field identifying the local peripheral address (Miyoshi: Figure 5; Figure 6, refs. 615, 620).

Referring to claim 7, Heil-Miyoshi discloses a relational database (i.e. node ID table) to correlate local peripheral address with an address of a remote peripheral device (Miyoshi: Figure 7a, ref. 703; col. 10, lines 50-64).

Referring to claim 8, Heil-Miyoshi discloses formatting a drive command issued by the drive command module for delivery over the communications network to the remote peripheral device (i.e. I/O ISM formats the request into a format to be transmitted over the network) (Heil: col. 11, lines 35-45).

Referring to claim 9, Heil-Miyoshi discloses the redirector inserting an address associated with the remote peripheral device into the drive command (Heil: col. 11, lines 35-55; Miyoshi: col. 10, lines 50-64).

Referring to claim 10, Heil-Miyoshi discloses the network server receives the I/O request from the network and extracts an address associated with the remote peripheral device (i.e. translation of a destination address from a base address and address offset of a local I/O request) (Miyoshi: col. 10, line 65 to col. 11, line 14).

Referring to claim 11, Heil-Miyoshi discloses the local peripheral address corresponding to a local peripheral address of a host device of a drive command module (i.e. the local address references an address which corresponds to an address space indicating that the request is a remote address request) (Miyoshi: Figure 5).

Art Unit: 2478

Referring to claim 12, Heil-Miyoshi discloses the redirector is disposed on the host device (i.e. I/O ISM software is on the node) (Heil: col. 11, lines 35-45).

Claims 13-23 recite essentially the same limitations of claims 1-12 in method form and are rejected for similar reasons as stated above.

Claims 33-37 recite essentially the same limitations of claims 1-12 in means-plus function language and are therefore rejected for similar reasons as stated above.

Claims 43-48 recite essentially the same limitations of claims 1-12 in a computer-readable medium and are therefore rejected for similar reasons as stated above.

Claims 24-25, 27-32, and 38, 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heil-Miyoshi in view of Hewitt (USPN 5,987,541).

Referring to claim 24, Heil-Miyoshi disclose the invention substantively as described in claims 1-12.

Heil-Miyoshi do not explicitly disclose that the I/O request is to record data to an optical medium, however Miyoshi does disclose that the I/O request can be a write request (see rejections above).

In analogous art, Hewitt discloses another computer system which discloses an optical drive (i.e. CD-ROM drive 132) on a PCI bus 120 (Figure 1).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Heil-Miyoshi to substitute the remote device on the PCI bus 201c-e of Miyoshi with the CD-ROM drive of Hewitt in order to provide the benefits of Hewitt to Heil-Miyoshi, specifically the ability to communicate with an optical drive via a well known bus protocol such as PCI.

Claims 25-32 and 38-42 are rejected for similar reasons as stated above.

(10) Response to Argument

On pages 9-10 of the brief, appellant argues the Heil reference does not teach the limitations of claim 1 specifically citing, “automatically and transparent to the client application conveying I/O request from the client application over a communications network to a remote peripheral device for processing of the I/O request.”

And in independent claim 33, “insert an address associated with the remote peripheral device into a drive command issued by the receiving means.”

In response, the examiner respectfully submits:

The prior art teaches the invention as claimed and therefore the examiner maintains the rejection.

In response to appellant’s arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

First with respect to the Heil reference:

Heil is cited and is produced to teach an I/O request processing system cited in the preamble (see nodes 150 and 151 of Fig. 1+2 of Heil).

Heil teaches receiving and processing I/O requests from a client application (see: col. 10, lines 50-65 where “the layers are defined and the host interface layer 230 manages communication between layers”). These layers allow sending and transmitting and interacting between device layers. Col. 11, lines 45-53 illustrate the HBAs retrieve data corresponding to an I/O request for stored data blocks. Heil teaches a redirector to automatically and transparently convey the I/O request over the network to a remote peripheral device (other HBA device Node

Art Unit: 2478

151) for processing of the I/O request. Col. 11, lines 54-65 illustrate the request is to a remote block of data that request a connection over the network.

This is performed ‘automatically’ and ‘transparent’ to the client because all of the redirectors functions are performed internally so the client does not to be aware of the redirector accessing another device. This is consistent with appellant’s specification para 16. The request process is the same (as seen from the higher host layers) for local requests as they are for remote requests. By this rationale, the redirection is completely transparent to the client application and therefore the rejection is maintained. It is automatically performed because it does not require intervention by the requesting application. The redirector performs the steps.

On page 10 of the brief, applicant argues because Heil establishes communications before shipping the I/O block request that is it somehow not automatically performed and not transparent to the client. The examiner sees no evidence that the transfer of the block is not automated or requires the client’s intervention in the process. The steps are performed transparently and seamlessly and is consistent with applicant’s specification para 16.

Heil is not relied upon to teach the replacing step or the ‘the request referencing a local peripheral address of a peripheral device to execute the I/O request.’

On page 11, appellant argues Heil in view of Miyoshi do not teach “I/O request from a client application referencing a local peripheral address of a peripheral device for processing of the I/O request and replacing the local peripheral address of the I/O request with an address associated with the remote peripheral device.” Specially reciting ‘replacing the local peripheral address’ and ‘with an address associated with the remote peripheral device.’

In response, the examiner respectfully submits:

Appellant’s argument that Heil does not teach the client application referencing a local peripheral address is correct. This is mentioned in the lacking state of the combination, “Heil does not explicitly disclose the request referencing a local peripheral address of a peripheral device to execute the I/O request.”

In analogous art, Miyoshi discloses an I/O request translation system which receives an I/O request of a local peripheral device (i.e. PCI request references a local PCI address space

Art Unit: 2478

which is then mapped to a plurality of remote peripheral devices represented by the remote PCI address space) at a module which references a local peripheral address to execute the I/O request (Figure 5; col. 12, lines 25-37; col. 4, lines 30-67). Miyoshi's peripheral device receives a request and can perform destination address and destination node ID translation. Miyoshi also teaches a redirector is adapted to replace the local peripheral address with an address of the remote peripheral device (i.e. translate the local address space to an address of the remote device) (Miyoshi: Figure 10a, ref. 1003; col. 4, lines 31-36).

On page 12 of the brief, appellant argues and regarding claims 24-25, 27-32, 38, and 40-42, appellant argues the combination does not teach the limitation of 'receiving a drive command from a client application to record data to an optical medium and formatting the drive command to record data to an optical medium and formatting the drive.

In response, the examiner respectfully submits:

The features of redirecting, 'automatically and transparent,' and replacing are addressed above.

The Hewitt reference is relied upon to teach you can perform requests to input/output to an optical drive on a bus similar to Miyoshi. Hewitt col. 5, lines 18-40 teaches bus communication with devices like the CD-Rom drive.

Further, the optical drive is a type of peripheral device and treated as an equivalent in which the requests to access and write to are directed. Hewitt, Fig 1, tag 132 in which an optical drive (i.e. a cd-rom) is taught in a computer system that uses the same bus communication structure of Heil in view of Miyoshi.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

Art Unit: 2478

Conclusion

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Benjamin R Bruckart/

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